L. H. SOISSON.

GAGE FOR THREAD CUTTING TOOLS.

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Fig. 1.

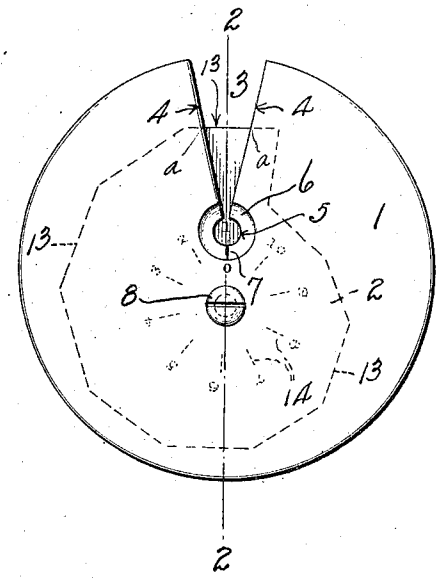


Fig. 2.

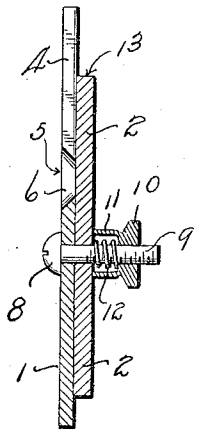
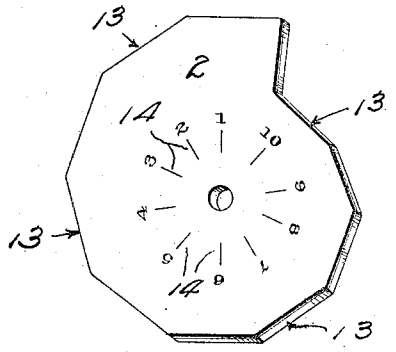


Fig. 3.



Witnesses

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GAGE FOR THREAD-CUTTING TOOLS.

1,195,287. Specification of Letters Patent. Patented Aug. 22, 1916.

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To all whom it may concern:

Be it known that I, LOUIS H. SOISSON, a citizen of the United States, residing at Scottdale, in the county of Westmoreland and State of Pennsylvania, have invented certain new and useful Improvements in Gages for Thread-Cutting Tools, of which the following is a specification.

This invention relates in general to gages, and more particularly to devices of this character that are especially adapted to accurately gage the size of tools used in cutting screw threads of different pitches, or in other words, furnish a correct standard for tools that are used in determining the number of threads per linear inch.

In grinding down tools used to determine the character of a screw thread, it is essential that a positive and effective gage device be utilized to insure absolute accuracy.

To this end, the invention contemplates a novel and practical instrument designed to be used when grinding threading tools to conform to the twenty-nine degree "Acme" standard, and which is of simple construction, easily manipulated, and readily capable of adjustment to the desired pitch.

In this connection, the device also contemplates a construction whereby the instrument may be set or adjusted so that only the desired number of threads per inch can be obtained from each particular adjustment, thereby providing a device that may be conveniently handled without the necessity of making an adjustment every time that it is desired to gage the tool, thus eliminating danger of error in grinding the tool, as might occur if frequent adjustments were necessary.

With the above and other objects in view which will more readily appear as the nature of the invention is better understood, the same consists in the novel construction, combination and arrangement of parts hereinafter more fully described, illustrated and claimed.

A preferred embodiment of the invention is disclosed in the accompanying drawing, wherein the device is shown on a considerably enlarged scale, and in which—

Figure 1 is a plan view of the device. Fig. 2 is a section on the line 2—2 of Fig. 1. Fig. 3 is a perspective view of the pitch disk.

Similar reference characters designate corresponding parts throughout the several figures of the drawings.

A novel and distinctive feature of the invention resides in the employment of a main gage disk, and a rotatable pitch disk, which coöperate to provide a gage notch whereby the tool used for cutting screw threads may be accurately ground to conform with an adopted standard. That is to say, the invention proposes to utilize a member having a notch of a predetermined included angle, preferably 29° to conform with the Acme standard, and a rotatable pitch member for coöperating with the notched member to give the different pitches, or the number of threads per linear inch. As thread cutting tools vary in width at their point for different pitches or threads per inch, but retain the same angle for all pitches, it is proposed to bring a plurality of pitch or thread determining faces carried by the pitch member into position across the notch to obtain the desired number of threads per inch.

Accordingly, the present invention is capable of embodiment in various sizes and designs, and may be made of any material suitable for the purpose, preferably thin metal, and in all cases essentially comprises a main gage disk 1, and a relatively adjustable pitch disk 2.

Referring to the characteristics of the main gage disk 1, it will be observed, more particularly from Fig. 1 that the same is provided with a V-shaped notch 3, the side walls 4 of which converge inwardly from the periphery of the disk, so as to form an angle of 29°, thus conforming to the requirements of the well-known "Acme" standard. The apex of the notch 3 opens into a sight opening 5, which is surrounded by an annular depression or cupped portion 6 having a fixed designation 7 in the form of a straight line which indicates the center of the angle of the notch 3.

The pitch disk 2 is carried by the main gage disk 1, and is eccentrically connected therewith by means of a pivot pin 8. For the purpose of causing a frictional engagement between the disks 1 and 2, the pivot pin 8 is preferably threaded as at 9, and provided with a clamping nut 10, which is hollowed out at one end as at 11 to receive and house a tension spring 12. In addition to providing for adjusting the tension of the spring 12, the clamping nut 10 securely

holds the two plates in their adjusted position when the tool is in use.

Referring further to the novel features of the pitch disk 2, it will be observed that the periphery thereof is of a substantially spiral disposition, and is provided with a plurality of flat peripheral pitch faces or pitch determining faces 13 which may vary in number according to the requirements of the device. That is to say, the number of these faces may vary in each instrument according to the class of work to give the desired or required number of threads required for each linear inch. It will thus be apparent that since these flat pitch faces 13 are arranged successively in spiral relation, they are necessarily of different distances from the center of the pitch disk thereby being graduated to provide for adjusting the device to different pitches. Accordingly, when the disks 1 and 2 are in their assembled relation as shown in Figs. 1 and 2, the rotation of the disk 2 will vary the depth of the notch 3 for a distance equal to the difference in distance of each pitch face 13 from the center of the disk. The disk 2 is preferably provided with a plurality of indicating marks 14 which are so disposed that they indicate the center of the pitch faces, and are so arranged that they will appear before the sight opening 5 in the disk 1 to register with the fixed mark 7 thereon. This arrangement provides for insuring the accuracy of the angles provided by the coöperating pitch faces 13 and sides 4 of the notch 3.

It is of course understood that the width of the end of the cutting tool is measured by the distance between the points *a*—*a*, and that this distance varies according to the pitch face disposed across the notch 3. That is to say, the distance *a*—*a* varies in accordance with the radius of the pitch face from the center of the disk 2. Thus, when a pitch face of long radius is disposed across the notch, the points *a*—*a* will be farther apart than when a pitch face of short radius is in operative position. In this way, the desired pitch or number of threads per linear inch may be readily selected, and the end of the tool ground to fit accurately to the outlines of the pitch notch formed by the cooperating gage surfaces of the members 1 and 2.

It is thought that the manner of operating and using the present device will be readily apparent. However, it may be stated in this connection that the varying pitches are selected by merely rotating the disk 2 so that the fixed mark of the selected pitch face is made to register with the fixed mark on the disk 1, thus bringing the selected pitch face into operative position across the notch. The relative movements of the disk are effected by slightly unloosening the screw 10, and to hold the disks in their adjusted positions, this same screw may be tightened. Accordingly, if it is desired, for example, to cut a six-pitch thread or six threads per inch, the pitch disk 2 is revolved until the pitch face corresponding to the designation "6" on the pitch disk appears in the sight opening 5. The center line 7 and the indication mark "6" designated in Fig. 3 as "14" must then coincide, and the disks are held in their adjusted position by the clamping nut 10. The thread cutting tool is then ground to conform to the opening 3 formed by the sides 4 of the notch, and the pitch face 13 corresponding to the number of threads per inch, in the present example "6". Thus, a tool ground to fit the notch for this adjustment will cut a screw having six threads to the inch. In this connection, it will be understood that the pitch or width of the tool may be gaged by revolving the pitch disk 2 so that the desired pitch face will come across the notch 3, and thus cooperate with the sides 4 of the notch to give the desired pitch or number of threads per linear inch. The present device is therefore capable of gaging a tool to cut anywhere from 1 to 10 threads per linear inch, but it will of course be understood that by increasing the number of pitch faces arranged successively in spiral relation, that the number of threads per inch can be increased.

Without further description, it is thought that the features and advantages of the present invention will be readily apparent to those skilled in the art, and it will be readily understood that minor changes in the details of construction may be resorted to without departing from the spirit of the invention or scope of the appended claims.

I claim:

1. A gage for sizing thread cutting tools comprising a main gage member having a permanently open notch in its edge the walls of the notch converging as the depth increases, and a relatively adjustable member carried by the said main gage member and provided with a plurality of tool abutment faces at variable distances from the point of support of the adjustable member, said faces being adapted to be separately positioned across the notch to form the bottom thereof.

2. A gage for sizing thread cutting tools comprising a main gage member having a notch, and means eccentrically pivoted to said main gage member and having a plurality of flat pitch determining faces for varying the depth of said notch.

3. A gage for sizing thread cutting tools comprising a main gage member having a V-notch, and means pivotally connected to said main gage member having a plurality of flat pitch determining faces, said faces being arranged successively at different dis-

tances from the point of pivotal connection of said means with the main gage member to vary the depth of said V-notch.

4. A gage for sizing thread cutting tools comprising a main gage disk having a V-notch, and a pitch disk pivotally carried by said gage disk and having in its periphery a plurality of flat pitch faces coöperating with said V-notch.

5. A gage for sizing thread cutting tools comprising a main gage disk having a V-notch, said notch having a sight opening at its apex and a fixed mark for indicating its center, a pitch disk eccentrically pivoted to said gage disk and having a plurality of flat pitch determining faces coöperating with said V-notch to vary the depth thereof, and also having marks adapted to register with said fixed mark indicating the center of the V-notch, and means for holding the disks together.

In testimony whereof I hereunto affix my signature in the presence of two witnesses.

LOUIS H. SOISSON.

Witnesses:
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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."